



IEEE Reference:

**Optical data transfer between two computers via Fiber optic
communication**

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Title of the project : Data Communication between two computers using
Fiber Optic Cable

Domain : Communication, Embedded Systems Design

Software : Embedded C, Keil, Proload

Microcontroller : AT89C51

Power Supply : +5V, 500mA Regulated Power Supply

Display : a) LCD
b) LED

LCD : HD44780 16-character, 2-line (16X2)

LED : 5mm White-in-Red, 5mm White-in-Blue

Crystal : 11.0592MHz

ADC : ADC0804

Developed By : M/S Wine Yard Technologies

Phone : 040-64 64 63 63

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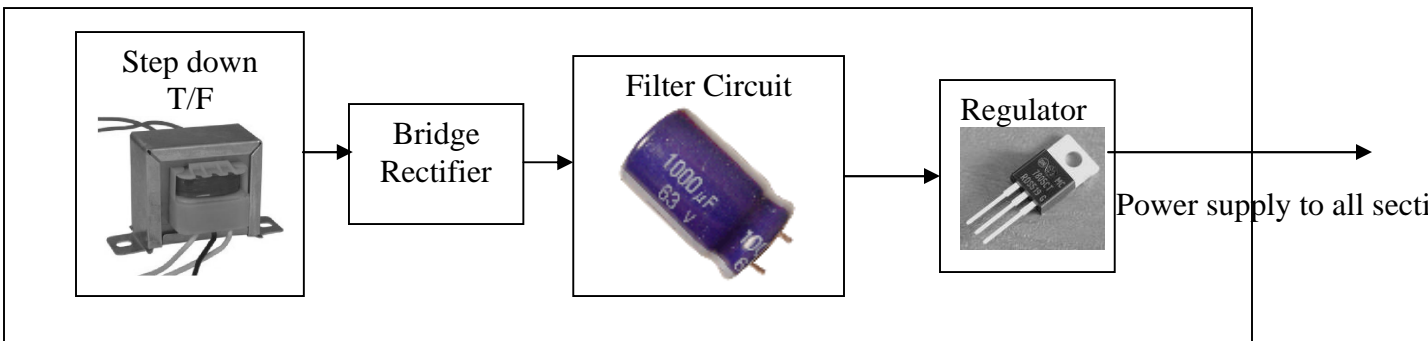
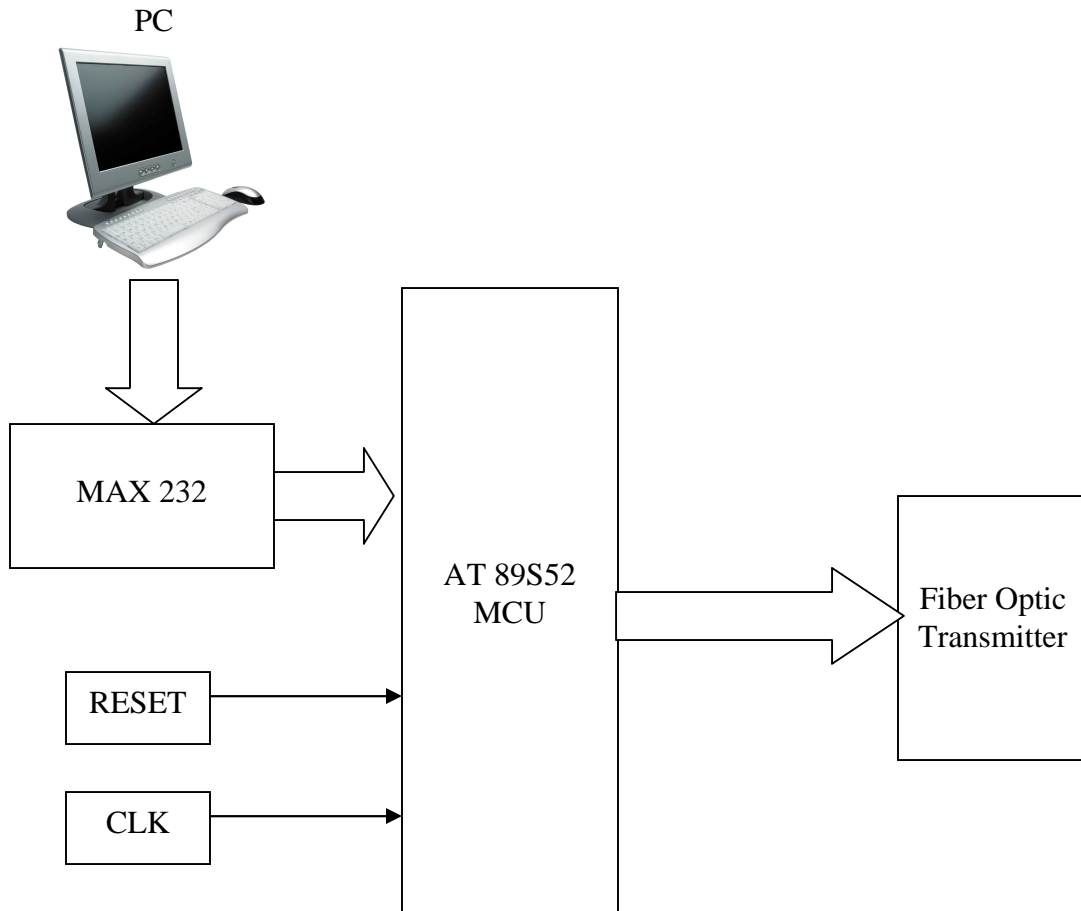
ABSTRACT

One of the 8051s many powerful features is its integrated *UART*, otherwise known as a serial port. The fact that the 8051 has an integrated serial port means that you may very easily read and write values to the serial port. If it were not for the integrated serial port, writing a byte to a serial line would be a rather tedious process requiring turning on and off one of the I/O lines in rapid succession to properly "clock out" each individual bit, including start bits, stop bits, and parity bits.

In this project, the data is transmitted from a microcontroller to remote PC via fiber optic cable using RS232 communication. On transmitter side, a computer is interfaced to MCU using MAX232 to enter the data. On the receiver side, computer is interfaced using MAX232 IC. HyperTerminal is used to display the data. Fiber optics transmission of digitized messages or information by light pulses along hair-thin glass fibers. Each fiber is surrounded by a cladding having a high index of refractance so that the light is internally reflected and travels the length of the fiber without escaping. Cables of optical fibers can be made smaller and lighter than conventional cables using copper wires or coaxial tubes, yet they can carry much more information, making them useful for transmitting large amounts of data between computers and for carrying data-intensive television pictures or many simultaneous phone conversations. Optical fibers are immune to electromagnetic interference (from lightning, nearby electric motors, and similar sources) and to crosstalk from adjoining wires, and tapping into them is more easily detected. To keep a signal from deteriorating, optical fibers require fewer repeaters over a given distance than does copper wire. In addition to communications, optical fibers are beginning to be used in medical procedures, automobiles, and aircraft and are expected to have many other applications.

This project uses regulated 5V, 750mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.

Transmitter Block Diagram



Receiver Block Diagram

